



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/708,930	04/01/2004	Charles H. Robinson	2003-010	2929

32170 7590 01/31/2005

U.S. ARMY TACOM-ARDEC
ATTN: AMSTRA-AR-GCL
BLDG 3
PICATINNY ARSENAL, NJ 07806-5000

EXAMINER

HAYES, BRET C

ART UNIT	PAPER NUMBER
----------	--------------

3644

DATE MAILED: 01/31/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/708,930

Applicant(s)

ROBINSON ET AL.

Examiner

Bret C Hayes

Art Unit

3644

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-35 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-35 is/are rejected.
- 7) ☒ Claim(s) 1, 10, 18, 25, 26, 28, 29 and 35 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 April 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Information Disclosure Statement

1. The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609 A(1) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

Drawings

2. The drawings filed on 01 APR 04 are acceptable subject to correction of the informalities indicated on the attached "Notice of Draftsperson's Patent Drawing Review," PTO-948. In order to avoid abandonment of this application, correction is required in reply to the Office action. The correction will not be held in abeyance.

Claim Objections

3. Claims 1, 10, 18, 25, 26, 28, 29 and 35 are objected to because of the following informalities: claim 1, lines 5 and 6 (1:5,6); 10:7,8; 18:9,10; 25:6,7; 26:9,10; 28:7,8; 29:5,6; and 35:6,7; recite the limitations "a safe position" and "an armed position", which should be --the safe position-- or --said safe position--, and --the armed position-- or --said armed position--, since "a safe position and an armed position" has been previously recited in the base claim, and

Art Unit: 3644

since there is no support for multiple safe and armed positions in the disclosure. Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1 – 35 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

6. Claims 1 – 9, 18 – 24, 26, 27 and 29 – 34 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: a micro-electro-mechanical system (MEMS) based mechanical safe and arm assembly, as disclosed at page 2, paragraph 3 of the specification, and how the charges (input explosive column (or row), transfer charge and receptor charge) structurally relate to each other and the assembly. The MEMS-based mechanical safe and arm assembly is critical to the claimed invention as without this structure, the charges could be interpreted to be floating in space or lying about on a table. In other words, the claims only relate how the charges are disposed in relation to one another, and are silent with regard to structural limitations defining a connection to the MEMS-based mechanical safe and arm assembly as disclosed.

7. Any unspecified claim is rejected as being dependent upon a rejected base claim.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 1 – 9, 18 – 24, 26, 27 and 29 – 34 are rejected under 35 U.S.C. 103(a) as unpatentable over US Patent No. 6,167,809 B1 to Robinson et al. (*Robinson*). In view of the rejection under 112, 2nd paragraph above, the metes and bounds of the claims cannot properly be determined. As best understood, the claims are rejected as follows.

10. Re – claim 1, Robinson discloses the claimed invention including, as set forth at col. 10, lines 43 – 54 (10:43-54), and 11:4-11, a fire train for a safe and arm device comprising out of position and/or out of alignment explosives wherein, in the safe position, the initiator is remote from the remaining explosives and wherein, in the armed position, the initiator is adjacent the remaining explosive charges.

11. Arguably, Robinson does not disclose the specific number and arrangement of the explosive charges. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use as many explosive charges as necessary, since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8. And, also, since in general detonators consist of an ignition charge, intermediate charge, and a base charge--each charge in the train being selected and used to transition from heat to shock.

12. Further, it would have been obvious to one having ordinary skill in the art at the time the invention was made to rearrange the explosive charges relative to the fire train, since it has been held that rearranging parts of an invention involves only routine skill in the art. *In re Japiske*, 86 USPQ 70.

13. Re – claims 2 – 4, Robinson discloses the invention substantially as claimed except for the claimed total volumes. It would have been an obvious matter of design choice to select the total volumes as necessary, since such a modification would have involved a mere change in the size of a component. A change in size is generally recognized as being within the level of ordinary skill in the art. *In re Rose*, 105 USPQ 237 (CCPA 1955).

14. Re – claims 5 and 6, Robinson discloses the use of explosives and, as set forth above, detonation generally involves the use of three charges.

15. Re – claim 7, Robinson discloses the claimed invention except for the column comprising first, second and third charges. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the column comprise first, second and third charges, since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St, Regis Paper Co. v. Bemis Co.*, 193 USPQ 8. In this case, duplicating explosive charges in an initiator would be considered mere duplication.

16. Re – claim 8, Robinson discloses the claimed invention except for the charges consisting of primary and secondary explosives. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the charges consist of primary and secondary explosives, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design

Art Unit: 3644

choice. *In re Leshin*, 125 USPQ 416. In this case, selection of primary or secondary (sensitive or insensitive) explosives would be within the level of ordinary skill in the art.

17. Re – claim 9, Robinson discloses the claimed invention including an initiator chip (MEMS-based assembly) except for a spot charge and an output charge. See above with regard to duplication of essential working parts of an invention.

18. Re – claims 18 – 24, 26, 27 and 29 – 34, see above rejection of like claims.

Allowable Subject Matter

19. Claims 10 – 17, 25, 28 and 35 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

20. The following is a statement of reasons for the indication of allowable subject matter: the prior art of record discloses no less than three (3) charges in a MEMS-based assembly; however, the prior art of record neither discloses nor fairly teaches the combination including a base assembly having an output charge and a first portion of the receptor charge therein, a safe and arm device layer disposed atop the base assembly including an arming mechanism, a cover plate assembly disposed atop the safe and arm device layer and having an input explosive column disposed therein, and an initiator board assembly disposed atop the cover plate assembly and having a spot charge and an initiator chip disposed therein.

21. This statement is not intended to necessarily state all the reasons for allowance or all the details why the claims are allowed and has not been written to specifically or impliedly state that all the reasons for allowance are set forth (MPEP 1302.14).

Art Unit: 3644

Conclusion

Any inquiry concerning this communication should be directed to Bret Hayes at telephone number (703) 306 – 0553. The examiner can normally be reached Monday through Friday from 5:30 am to 3:00 pm, Eastern Standard Time.

If attempts to contact the examiner by telephone are unsuccessful, the examiner's supervisor, Teri Luu, can be reached at (703) 305 – 7421. The fax number is (703) 872 – 9306.

bh

1/27/05



TERI PHAM LUU
SUPERVISORY
PRIMARY EXAMINER